WOOD AND FIBER

JOURNAL OF THE SOCIETY OF WOOD SCIENCE AND TECHNOLOGY

VOLUME 12 SPRING 1980 NUMBER 1

THE CONTRIBUTION OF TECHNOLOGY TO TIMBER SUPPLY

Projections of past trends indicate that wood will become both scarce and expensive during the next few decades. According to the Forest Service Assessment of the Forest and Range Land Situation in the U.S. issued this year, U.S. consumption of softwood roundwood will increase 1.6-fold, while consumption of hardwood roundwood will increase 2.1 times by the year 2000. At the same time because of limited supplies, average softwood stumpage prices will increase 200%, but hardwood stumpage prices will increase less than 10% with more abundant supplies. Most of the increase in softwood use will occur in the sawmill and pulp industries in response to increased demand for construction materials and paper. Hardwoods will experience major increases in pulpwood and fuelwood use because of increased demand for paper and energy.

While these projections bode well for the owners of timber because of the projected increase in stumpage prices, they may mean the substitution of more energy-intensive materials for wood, hardship for consumers who have to pay more for wood-derived products, and a continued contribution to the high rate of inflation for wood products. These results assume that the rate of technological change in the future would remain as it has in the past—approximately a 10% increase in productivity over the next 50 years. If the rate of change were to increase above this level in the future, then some of the undesirable effects of scarce, expensive wood could be alleviated.

A recent Forest Service study[1] has analyzed numerous opportunities to increase supplies through technological change so as to increase utilization and improve efficiency in production and end use. These opportunities could make available to consumers an additional 4 billion cubic feet of wood annually by the year 2000, compared to the present consumption of about 14 billion cubic feet annually. Furthermore, they can be achieved at a relatively low cost, compared to other supply-extending options such as harvesting additional National Forest timber or investing in intensive forest management on private lands.

Increasing the utilization of material presently unused holds the most promise for augmenting timber supplies in the future. New techniques in bark separation for chips, press-drying of paper, small log harvesting and handling, production of hardwood structural lumber, and recovery of urban wood wastes

[1] Enoch Bell, 1979. Expanding wood supplies through improved technology and utilization. Unpublished report for USDA Forest Service, Policy Analysis, Washington, D.C. 38 pp.

Wood and Fiber, 12(1), 1980, pp. 1–2

are possible. These techniques would permit the utilization of wood residues that are presently unused and the substitution of more plentiful hardwoods for softwoods in paper making and construction. The utilization of unused material could add almost 2 billion cubic feet to the wood supply.

Modest gains in efficiency can be obtained through the adoption of new technology in the production process. New processes in veneer and plywood production, sawing mechanics, drying, furniture making and quality control in general could save up to 800 million cubic feet of wood annually by the year 2000. Most of these improvements could also reduce the cost of production and, thus, reduce consumer prices.

Other gains in efficiency could occur from new technology in various end uses such as reducing wood in housing structures, extending the durability of pallets, and targeting design of containers to permit reduced wood use in container-board. Also new technology to protect wood from fire, insects, and decay can reduce wood loss and the need for replacement in many end uses. As much as 1.3 billion cubic feet of wood could be saved by the year 2000 through application of these kinds of technologies.

Together these opportunities provide an effective means of extending wood supplies in the future. Forest Service Research and their university and industrial collaborators are already working on many of these opportunities and plans to start on others. Development and adoption of new technology offer the most promising opportunity for meeting the increased demand for wood in the future.

ROBERT E. BUCKMAN

Deputy Chief for Research
USDA Forest Service
Washington, DC 20013